Sexually Transmitted Diseases

Section 1: INTRODUCTION

Sexually transmitted diseases (STDs) are reported by health care providers and laboratories directly to the Massachusetts Department of Public Health (MDPH), specifically to the MDPH Bureau of Communicable Disease Control, Division of STD Prevention (DSTDP). The DSTDP is charged with surveillance, investigation, and control of STDs.

The foundation of STD prevention and control is monitoring of disease trends. Cases of STDs, as determined by clinical diagnosis and/or laboratory evidence of infection, are reportable directly to the DSTDP within 24 hours of diagnosis (see regulations under *105 CMR 300.180* and *105 CMR 300.170*).

The following ten diseases and conditions are reportable:

- **Chlamydial infection (*Chlamydia trachomatis*)**
- **Gonorrhea (*Neisseria gonorrhoeae*)**
- **Syphilis (*Treponema pallidum*)**
- **Pelvic inflammatory disease (irrespective of etiology)**
- **Chancroid (*Haemophilus ducreyi*)**
- **Lympogranuloma venereum (LGV, *Chlamydia trachomatis*, L1, L2, and L3)**
- **Granuloma inguinale (*Calymmatobacterium [Donovania] granulomatis*)**
- **Neonatal herpes simplex virus infection**
- **Opthalmia neonatorum (*Neisseria gonorrhoeae, Chlamydia trachomatis*)**
- **Genital warts (condyloma acuminatum, human papillomavirus infection)**

Health care providers must complete and mail a MDPH *Morbidity Case Report Card* to the DSTDP (found at the end of this chapter) or provide an equivalent report. Laboratories must report significant findings by either mail or fax, or electronically.

The DSTDP provides the services of disease intervention specialists (DIS). The DIS, with cooperation of the patient and health care provider, interview individuals with "priority diseases" (syphilis, rectal gonorrhea, quinolone-resistant *Neisseria gonorrhoeae*, LGV, and chancroid) regarding possible source(s) of infection, and they identify and notify those who may have been exposed. These highly-trained counselors/field investigators will try to locate each named contact and inform them of their exposure (discreetly and without revealing or acknowledging the source of information); impress upon them the need for evaluation and presumptive treatment for a possible infection; provide information about where such services are available; and provide focused risk-reduction counseling to prevent future exposures. All priority cases are contacted and offered partner notification services. Case reports that have no treatment listed also initiate follow-up by the DIS. Providers can contact the DSTDP at (617) 983-6940 to access DIS services for assistance with any case or with questions.

The DSTDP supports STD clinical services through a number of contracted sites. The clinics are located throughout the state in licensed medical facilities, such as hospitals, community health centers, and family planning/Planned Parenthood clinics. For a complete list of all the clinic sites and days and times that clinics are in session, please see *Attachment A: STD Clinic Schedule* or visit the MDPH website at www.mass.gov/dph/cdc/std/services/clinicsched.htm. The clinics offer comprehensive STD exams and testing. All clinics are walk-in. All patients are seen regardless of ability to pay or immigration status. Local boards of health (LBOH), health departments, clinicians, and laboratories can contact the DSTDP directly at (617) 983-6940 with questions or for technical assistance regarding reporting or treatment guidelines (see *Attachment B: 2004 Sexually Transmitted Diseases [STD] Treatment Guidelines*). For help with interpreting syphilis serology results, clinicians can call the Seroreactor Desk at (617) 983-6954.

Chlamydia infection, gonorrhea, and syphilis are the most commonly reported STDs. They are bacterial STDs. Viral STDs are much more common than bacterial STDs, but are not reported as often. Herpes simplex virus infection and infection with human papillomaviruses are very prevalent, and while genital warts are reportable, little state or local data are available either for human papillomavirus infection or for herpes simplex virus infection. As more and more serologic and molecular diagnostic tests for evidence of infection with these viruses become available, surveillance information may also become more available.

Section 2:

ABOUT COMMON SEXUALLY TRANSMITTED DISEASES

GONORRHEA

A. Etiologic Agent

Neisseria gonorrhoeae are bacteria that appear as gram-negative diplococci on Gram-stained smear.

B. Clinical Description

Many infections can occur without symptoms. Most males with urethral infection have symptoms of purulent or mucopurulent urethral discharge. Men may also have epididymitis due to *N. gonorrhoeae*. Most infections in women are asymptomatic. Symptoms for women can include abdominal pain, and mucopurulent or purulent cervical discharge. Women may also get urethritis. *N. gonorrhoeae* can cause pelvic inflammatory disease. Disseminated (bloodstream) infection can occur with rash, and joint and tendon inflammation. Infection of the throat and the rectum can also occur and are often asymptomatic.

C. Vectors and Reservoirs

Humans are the only known natural host and reservoir of infection.

D. Modes of Transmission

Gonorrhea is transmitted through oral, vaginal, or anal sex. Gonorrhea can also be transmitted at birth through contact with an infected birth canal.

E. Incubation Period

The incubation period for gonorrhea is 1–14 days for symptomatic disease.

F. Period of Communicability or Infectious Period

All sexual contacts within 60 days of the onset of symptoms or diagnosis of gonorrhea should be evaluated and treated. Individuals with asymptomatic infection are infectious as long as they remain infected.

G. Epidemiology

Gonorrhea is the second most commonly reported notifiable disease in the U.S.; over 300,000 cases occur annually. The number of reported cases underestimates true incidence.

H. Treatment

Ceftriaxone, 250mg, IM x 1 dose is the recommended treatment in Massachusetts. For additional treatment options, see *Attachment B: 2004 Sexually Transmitted Diseases (STD) Treatment Guidelines*.

GENITAL CHLAMYDIA TRACHOMATIS INFECTION

A. Etiologic Agent

Chlamydia trachomatis is an intracellular bacterial pathogen.

B. Clinical Description

Most frequently, no noticeable symptoms are present. Males with urethral infections may have a mucoid or clear urethral discharge and dysuria. Symptomatic females can have mucopurulent endocervical discharge, dysuria, and pain in the lower abdomen. Women may have pelvic inflammatory disease and inflammation of the surface of the liver due to *C. trachomatis* (Fitzhugh-Curtis syndrome). Men may develop epididymitis. Infection of the rectum may also occur and is often asymptomatic.

C. Vectors and Reservoirs

Humans are the only known natural host and reservoir of infection.

D. Modes of Transmission

Chlamydia is transmitted through oral, vaginal, or anal sex. It can also be transmitted at birth through contact with an infected birth canal.

E. Incubation Period

The incubation period of chlamydia is 7–21 days for symptomatic disease.

F. Period of Communicability or Infectious Period

All sexual contacts within 60 days of the onset of symptoms or diagnosis of chlamydia should be evaluated and treated. Individuals with asymptomatic infection are infectious as long as they remain infected.

G. Epidemiology

Chlamydial infection is the most frequently reported notifiable STD in the U.S. Many infections go undiagnosed and unreported. There are an estimated three million cases in the U.S., annually. Reported rates are three times higher in females than in males.

H. Treatment

The following treatments are recommended in Massachusetts:

- Azithromycin, 1 gram, PO x 1 dose; or
- Doxycycline, 100 mg, PO, twice daily for 7 days.

For additional treatment options, see *Attachment B: 2004 Sexually Transmitted Diseases (STD) Treatment Guidelines*.

SYPHILIS

A. Etiologic Agent

Treponema pallidum are corkscrew-shaped bacteria (spirochetes).

B. Clinical Description

In primary syphilis, the first stage of syphilis, a lesion or chancre develops at the site of inoculation. This is a painless ulcer, often on the genitalia, but depending on contact, this lesion may occur on any part of the body, including mucous membranes. Regional lymphadenopathy may also develop. In the secondary stage, disseminated skin rash and lesions of the mucous membranes are most common. Other manifestations include malaise, lymphadenopathy, mucous patches (elevated patches in the mouth or anus), condylomata lata (syphilitic wart-like lesions generally in the perineal and perirectal areas) and alopecia (patchy hair loss). Late stage syphilis may involve any organ of the body, but involvement of the nervous system, eyes, heart, and arteries are particularly common. At any stage of syphilis, latent infection may occur (latent infection is ongoing infection without signs or symptoms). Early latent syphilis is an asymptomatic period occurring in the first year after infection, with late latent syphilis being asymptomatic infection of longer duration. Persons with primary, secondary, and early latent infection are considered to be infectious.

C. Vectors and Reservoirs

Humans are the only known natural host.

D. Modes of Transmission

Syphilis is transmitted through oral, vaginal, or anal sex. Transmission may also occur across the placenta prior to birth. Transmission rarely occurs by blood transfusion.

E. Incubation Period

The incubation period of syphilis is 9–90 days—median 21 days for primary syphilis. The incubation period is 3–12 months for secondary syphilis.

F. Period of Communicability or Infectious Period

Patients are most infectious during primary and secondary syphilis when lesions or rash are present. This is also consistent with the period of early latent syphilis. However, it may be possible to transmit the infection up to four years after initial infection.

G. Epidemiology

The rate of reported primary and secondary (P&S) syphilis in the U.S. decreased during the 1990s, and in 2000, was the lowest since reporting began in 1941. However, the number of cases of P&S syphilis increased during 2000–2002 and has remained elevated. This increase in incidence is due, in part, to an increased number of cases in men who have sex with men.

H. Treatment

Penicillin is the treatment of choice for all stages of syphilis and is the only recommended treatment for congenital syphilis, syphilis in pregnant women, and syphilis in persons with HIV infection. Benzathine penicillin, 2.4 million units, IM x 2 doses, 1 week apart, is the recommended treatment for primary, secondary, and early latent syphilis in Massachusetts. For treatment recommendations for other presentations of syphilis and in a penicillin allergic patient, see *Attachment B: 2004 Sexually Transmitted Diseases (STD) Treatment Guidelines*.

PELVIC INFLAMMATORY DISEASE (PID)

PID is an inflammation of the upper genital tract (uterus, tubes, and adjacent pelvic structures). It is characterized by lower abdominal/pelvic pain and tenderness, fever, and nausea and vomiting, with or without vaginal discharge. PID can be caused by *C. trachomatis* or *N. gonorrhoeae*, as well as by a variety of other infectious agents. The cause of PID cannot be determined solely on clinical grounds. Treatment is with a variety of antibiotic combinations (see *Attachment B: 2004 Sexually Transmitted Diseases (STD) Treatment Guidelines* for more information).

CHANCROID, LYMPOGRANULOMA VENEREUM (LGV), AND GRANULOMA INGUINALE (DONOVANIASIS)

Chancroid (caused by *Haemophilus ducreyi*), lympogranuloma venereum (LGV, caused by *C. trachomatis*, L1, L2, and L3), and granuloma inguinale (caused by *Calymmatobacterium [Donovania] granulomatis)* are uncommon in Massachusetts. Recently, cases of LGV, primarily presenting with proctitis, have been reported in men who have sex with men in Europe and in North America, including Massachusetts. Concerns and questions about these diseases can be referred to the DSTDP at (617) 983-6940 or to the state-funded STD clinics (see *Attachment A: STD Clinic Schedule*). See *Attachment B: 2004 Sexually Transmitted Diseases (STD) Treatment Guidelines* for treatment options.

NEONATAL HERPES SIMPLEX VIRUS INFECTION

Newborns may be exposed to herpes simplex virus in the birth canal, resulting in infection with varying degrees of severity, from minimal to overwhelming multi-organ involvement. Neonatal infection is most likely if primary genital herpes virus infection in the mother occurs near the time of delivery. Infection of the baby is less likely with recurrent genital herpes, but may occur if active lesions are present. Asymptomatic infection, with viral shedding, presents an even lower risk. Maternal anti-herpes simplex antibodies are passed to the fetus across the placenta, providing some degree of protection. Treatment is acyclovir.

OPHTHALMIA NEONATORUM

Ophthalmia neonatorum is infection of the eyes in newborns, occurring shortly after birth, which may be due to *C. trachomatis, N. gonorrhoeae*, or other agents. Reporting of eye disease with discharge in infants to the LBOH is mandated by law (*M.G.L., Ch. 111, s. 110*). In order to prevent ophthalmia neonatorum, all newborns are required to have prophylactic antimicrobial eye treatment (*M.G.L, Ch. 111, s. 109A; 105 CMR 130*).

GENITAL WARTS

Genital warts, which are caused by human papillomavirus (HPV) infection, are nodular or exuberant growths of tissue on the genitals or adjacent body parts. HPV infections, with and without genital warts, are extremely common. These warts are reportable, not with the expectation that all will be reported, but rather to authorize such reporting in situations where this information may be useful for public health purposes. The information may be helpful to assess prevalence of the condition, application and efficacy of treatment, and the extent of HPV infection and its diagnosis. It is now recognized that HPV infections may cause cervical dysplasia and some strains of the virus play a role in causing cancer of the uterine cervix.

REFERENCES

CDC. 2002 Guidelines for the Treatment of Sexually Transmitted Diseases. *MMWR*. 2002; 51(RR-7): 1–116.

Holmes, K.K., Mardth, P.A., Sparling, P.F., Weisner, P.J. eds. *Sexually Transmitted Diseases, 3rd Edition*. New York, McGraw-Hill Book Co., 1999.

MDPH. *Regulation 105 CMR 300.000: Reportable Diseases, Surveillance, and Isolation and Quarantine Requirements*. MDPH, Promulgated November 4, 2005.

ATTACHMENTS

Attachment A: STD Clinic Schedule

Attachment B: 2004 Sexually Transmitted Diseases (STD) Treatment Guidelines

Attachment A

STD Clinic Schedule

Note: All clinics are walk-in unless otherwise noted.

Clinic Name	Monday	Tuesday	Wednesday	Thursday	Friday
Boston					
Boston Medical Center (617) 414-4290	8:00–11:00 am 1:00–3:00 pm	8:00–11:00 am 1:00–3:30 pm	1:00–3:00 pm 5:00–6:00 pm	1:00–3:00 pm	8:30–11:00 am
Mass General GID Clinic (617) 726-2748	8:30–11am 1:00–3:00 pm	8:30–11:00 am	8:30–11:00 am 1:00–3:00 pm	8:30–11:00 am	8:30–11:00 am
MGH Chelsea Health Center (617) 887-4600		1:00–3:00 pm		3:00–5:00 pm	
Northeast					
LOWELL Lowell Community Health Center (978) 937-9700		3:00–6:30 pm		1:00–4:00 pm	
Southeast					
BROCKTON Brockton Hospital (508) 584-1200	4:00–6:00 pm		8:00 am–12:00 pm By appointment only	4:00–6:00 pm	
FALL RIVER SSTAR Family Health Care Center (508) 679-5222 x3228		10:00 am–5:00 pm	10:00 am–5:00 pm	9:00 am–5:00 pm	
Central					
WORCESTER Planned Parenthood (508) 854-3300	5:00–8:00 pm		4:00–7:00 pm		
West					
PITTSFIELD Berkshire Med Center (413) 447-2654	9:00 am–4:30 pm	9:00 am–4:30 pm	9:00 am–4:30 pm STD/TB/HIV/ATS	9:00 am–4:30 pm	9:00 am–4:30 pm
SPRINGFIELD Brightwood Health Center (413) 794-8354	9:00–11:00 am Mason Square NHC		9:00–11:00 am Mason Square NHC	9:00–11:00 am Brightwood Health Center	9:00–11:00 am Brightwood Health Center

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Attachment B

2004 Sexually Transmitted Diseases (STD) Treatment Guidelines

These guidelines for the treatment of STDs reflect the recommendations of the MDPH Division of STD Prevention (DSTDP) and of the 2002 CDC STD Treatment Guidelines. These are outlines for quick reference that focus on STDs encountered in an outpatient setting and are not an exhaustive list of effective treatments. Please refer to the complete document of the CDC for more information or call the DSTDP. Clinical and epidemiological services are available through the DSTDP, and staff is also available to assist health care providers with confidential notification of sexual partners of patients infected with STDs and HIV. Please call the DSTDP for any assistance at (617) 983-6940.

Disease	Recommended Treatment	Alternatives
Syphilis (see CDC guidelines for follow-up recommendations and management of congenital syphilis)		
Primary, Secondary, or Early Latent (<1 Year)		
Adults	Benzathine penicillin G 2.4 million units IM, 2 doses, 1 week apart (total 4.8 million units).	For penicillin-allergic, non-pregnant adult patients only, one of the following: - Doxycycline 100 mg orally 2 times a day for 14 days; - Ceftriaxone 1 g daily IV or IM for 8–10 days; or - Azithromycin 2 g orally single dose (should be avoided[1]).
Children	Benzathine penicillin G 50,000 units/kg IM, up to the adult dose of 2.4 million units, 2 doses, 1 week apart.	
Late Latent (>1 Year) or Latent of Unknown Duration		
Adults	Benzathine penicillin G 2.4 million units IM, 3 doses, 1 week apart (total 7.2 million units).	Doxycycline 100 mg orally 2 times a day for 28 days, for adults only.
Children	Benzathine penicillin G 50,000 units/kg IM up to the adult dose of 2.4 million units administered as 3 doses at 1 week intervals (total 150,000 units up to the total adult dose of 7.2 million units).	
Neurosyphilis		
	Aqueous crystalline penicillin G 18–24 million units per day, administered as 3–4 million units IV every 4 hours or continuous infusion, for 10–14 days.	Procaine penicillin 2.4 million units IM once daily plus probenecid 500 mg orally 4 times a day, both for 10–14 days.

Disease	Recommended Treatment	Alternatives
HIV Infection		
	- For primary, secondary, and early latent syphilis: Treat as above. Some specialists recommend 3 doses. - For late latent syphilis or syphilis of unknown duration: Perform cerebrospinal fluid (CSF) examination before treatment.	
Pregnancy		
	Penicillin is the only recommended treatment for syphilis during pregnancy. Women who are allergic should be desensitized and then treated with penicillin. Dosages are the same as in non-pregnant patients for each stage of syphilis.[2]	
Gonococcal Infections[3]		
Adults		
Cervix, Urethra, Rectum, Pharynx	Ceftriaxone 250 mg IM is the preferred regimen for the treatment of uncomplicated gonococcal infections in MA. Ceftriaxone is highly effective at all anatomical sites. Unless antibiotic susceptibility testing performed on a positive culture excludes resistance to quinolone, MDPH no longer recommends the use of quinolones for the presumptive treatment of gonorrhea or treatment based on a non-culture test result.[4]	If allergy, one of the following: - Spectinomycin[5] 2 g IM once. This is not effective to treat pharyngeal gonorrhea. - Azithromycin 2 g orally once. Preferred alternative for the treatment of pharyngeal gonorrhea.
Conjunctiva	Ceftriaxone 1 g IM once plus lavage the infected eye with saline solution once.	
Children (<45KG)		
Vagina, Cervix, Urethra, Pharynx, Rectum	Ceftriaxone 125 mg IM once.	Spectinomycin[5] 40 mg/kg IM once (maximum 2 g).
Neonates		
Ophthalmia Neonatorum[6] Infants born to infected mothers	Ceftriaxone 25–50 mg/kg IV or IM once (maximum 125 mg).	
Pregnancy		
	Ceftriaxone 125 mg (or 250 mg)[4] IM once.	Spectinomycin[5] 2 g IM once.

Disease	Recommended Treatment	Alternatives
Chlamydial Infections		
Adults		
	One of the following: - Azithromycin 1 g orally single dose; or - Doxycycline 100 mg orally 2 times a day for 7 days.	One of the following: - Erythromycin base 500 mg orally 4 times a day for 7 days; - Erythromycin ethylsuccinate 800 mg orally 4 times a day for 7 days; - Ofloxacin[7] 300 mg orally 2 times a day for 7 days; or - Levofloxacin[7] 500 mg orally once a day for 7 days.
Children		
<45 kg	Erythromycin base or ethylsuccinate 50 mg/kg/day orally divided into four doses daily for 14 days.[8]	
>45 kg and <8 years of age	Azithromycin 1 g orally single dose.	
>8 years of age	One of the following: - Azithromycin 1 g orally single dose; or - Doxycycline 100 mg orally 2 times a day for 7 days.	
Pregnancy		
	One of the following: - Erythromycin base 500 mg orally 4 times a day for 7 days; or - Amoxicillin 500 mg orally 3 times a day for 7 days.	One of the following: - Erythromycin 250 mg orally 4 times a day for 14 days; - Erythromycin ethylsuccinate 800 mg orally 4 times a day for 7 days (or 400 mg 4 times a day for 14 days); or - Azithromycin 1 g orally single dose.
Nongonococcal Urethritis		
	One of the following: - Azithromycin 1 g orally single dose; or - Doxycycline 100 mg orally 2 times a day x 7 days.	One of the following: - Erythromycin base[9] 500 mg orally 4 times a day for 7 days; - Erythromycin ethylsuccinate[9] 800 mg orally 4 times a day for 7 days; - Ofloxacin[7] 300 mg orally 2 times a day for 7 days; or - Levofloxacin[7] 500 mg orally once a day for 7 days.

Disease	Recommended Treatment	Alternatives
Epididymitis[10]		
	- Ceftriaxone 250 mg IM single dose, PLUS - Doxycycline 100 mg orally 2 times a day for 10 days.	One of the following: - Ofloxacin[10] 300 mg orally twice daily for 10 days; or - Levofloxacin[10] 500 mg orally once a day for 10 days.
Pelvic Inflammatory Disease[11] (outpatient management)		
These regimens to be used with or without metronidazole 500 mg orally twice a day for 14 days	One of the following: - Ceftriaxone 250 mg IM once; - Cefoxitin 2 g IM once plus probenicid 1 g orally once; or other third generation cephalosporin. PLUS - Doxycycline 100 mg orally 2 times a day for 14 days.	One of the following: - Ofloxacin[11,7] 400 mg orally 2 times a day for 14 days; or - Levofloxacin[11,7] 500 mg orally once a day for 14 days.
Pregnancy		
	Patients should be hospitalized and treated with the appropriate recommended parenteral IV treatments (see CDC guidelines).	
Chancroid		
	One of the following - Azithromycin 1 g orally single dose; - Ceftriaxone 250 mg IM single dose; - Ciprofloxacin[7] 500 mg orally 2 times a day for 3 days; or - Erythromycin base 500 mg orally 3 times a day for 7 days (preferred by some experts if HIV infection).	
Herpes Simplex Virus (for non-pregnant adults. See CDC 2002 guidelines for the management of herpes in pregnancy and in the neonate)		
First Clinical Episode of Genital Herpes		
	One of the following - Acyclovir 400 mg orally 3 times a day for 7–10 days; - Acyclovir 200 mg orally 5 times a day for 7–10 days; - Valacyclovir 1 g orally 2 times a day for 7–10 days; or - Famciclovir 250 mg orally 3 times a day for 7–10 days.	

Disease	Recommended Treatment	Alternatives
Episodic Recurrent Infection		
	One of the following - Acyclovir 800 mg orally 2 times a day for 5 days; - Acyclovir 400 mg orally 3 times a day for 5 days; - Acyclovir 200 mg orally 5 times a day for 5 days; - Famciclovir 125 mg orally 2 times a day for 5 days; - Valacyclovir 500 mg orally 2 times a day for 3–5 days; or - Valacyclovir 1 g orally once a day for 5 days.	
Daily Suppressive Therapy		
	One of the following: - Acyclovir 400 mg orally 2 times a day; - Valacyclovir 500 mg orally once a day; - Valacyclovir 1 g orally once a day; or - Famciclovir 250 mg orally 2 times a day.	
HIV Infection		
	Higher doses and/or longer therapy recommended. See 2002 CDC guidelines for more information.	
Pediculosis Pubis		
	One of the following: - Permethrin 1% cream rinse applied to affected area and washed off after 10 minutes; - Lindane[12] 1% shampoo applied for 4 minutes to the affected area then thoroughly washed off; or - Pyrethrins with piperonyl butoxide applied to affected area and washed off after 10 minutes.	
Scabies		
	Permethrin 5% cream applied to all areas of the body from the neck down and washed off after 8–14 hours.	One of the following: - Lindane[12] 1% 1 oz of lotion or 30 g of cream applied thinly to all areas of the body and thoroughly washed off after 8 hours; or - Ivermectin[12] 200ug/kg orally, repeated in 2 weeks.

Disease	Recommended Treatment	Alternatives
Bacterial Vaginosis (BV)		
	One of the following: - Metronidazole[13] 500 mg orally 2 times a day for 7 days; - Clindamycin cream 2% intravag. at bedtime for 7 day; or - Metronidazole gel 0.75% intravag. once a day for 5 days.	One of the following: - Metronidazole[13] 2 g orally in a single dose; - Clindamycin 300 mg orally 2 times a day for 7 days; or - Clindamycin ovules 100 g intravag. at bedtime for 3 days.
Pregnancy[14]		
	One of the following: - Metronidazole[13] 250 mg orally 3 times a day for 7 days; or - Clindamycin 300 mg orally 2 times a day for 7 days.	
Trichomoniasis		
	Metronidazole[13] 2 g orally single dose.	Metronidazole[13] 500 mg orally 2 times a day for 7 days.
Genital Warts		
External		
Provider-administered	One of the following: - Cryotherapy with liquid nitrogen or cryoprobe. Repeat applications every 1–2 weeks if necessary; - Trichloroacetic acid (TCA) or bichloroacetic acid (BCA) 80–90%. Apply small amount only to warts. Allow to dry. If excess amount applied, powder with talc, baking soda, or liquid soap. Repeat weekly if necessary; - Podophyllin resin 10–25%[15] in a compound tincture of benzoin. Allow to air dry. Limit application to <10 cm^2 and to <0.5 mL. Wash off 1–4 hours after application. Repeat weekly if necessary; or - Surgical removal.	

Patient-applied	One of the following: - Podofilox 0.5% solution or gel.[15] Apply 2 times a day for 3 days, followed by 4 days of no therapy. This cycle can be repeated as necessary for up to 4 times. Total wart area should not exceed 10 cm^2 and total volume applied daily should not exceed 0.5 mL; or - Imiquimod 5% cream[15]. Apply once daily at bedtime 3 times a week for up to 16 weeks. Wash treatment area with soap and water 6–10 hours after application.	
Urethral Meatus		
	One of the following: - Cryotherapy with liquid nitrogen; or - Podophyllin 10–25%[15] in a compound tincture of benzoin. Treatment area must be dry before contact with normal mucosa. Repeat weekly if necessary.	
Vaginal		
	One of the following: - Cryotherapy with liquid nitrogen. Cryoprobe not recommended (risk of perforation and fistula formation); or - TCA or BCA 80–90%. Apply small amount only to warts. If excess amount applied, powder with talc, baking soda or liquid soap. Repeat weekly if necessary.	
Anal		
	One of the following: - Cryotherapy with liquid nitrogen; or - TCA or BCA 80–90%. Apply small amount only to warts. If excess amount applied, powder with talc, baking soda, or liquid soap. Repeat weekly if necessary.	
Oral		
	One of the following: - Cryotherapy with liquid nitrogen; or - Surgical removal.	

1 Treatment failures with azithromycin have been reported in 2003 and are being investigated (*MMWR*, 2004;53:197–8). *T. pallidum* strains resistant to azithromycin have recently been documented (*NEJM*, 2004;351:454–8.). Doxycycline is the preferred alternative. If neither penicillin nor doxycycline can be administered, and azithromycin is considered, providers should contact the DSTDP and inform patients that cases of resistance have been found and that a close follow-up is essential to ensure successful treatment.

2 Tetracycline/doxycycline contraindicated; erythromycin not recommended because it does not reliably cure an infected fetus; data insufficient to recommend azithromycin or ceftriaxone.

3 Treat also for *Chlamydia trachomatis* if not ruled out by a sensitive test.

4 Quininolone resistant gonorrhea cases continue to rise in MA. If a quinolone was used for treatment of gonorrhea, a test of cure is recommended at all exposed anatomical sites if a culture was not initially used to rule out resistance.

5 Not effective against incubating syphilis. If you have difficulty in obtaining spectinomycin, contact Wendy Johnson, Pharmacia Corporation, at (800) 976-7741, ext 30110. Fax (800) 852-6421.

6 Hospitalize and evaluate for disseminated infection.

7 Quinolones are contraindicated in pregnant women. No joint damage attributable to quinolone therapy has been observed in children treated with prolonged ciprofloxacin regimens. Thus children who weigh ≥45 kg can be treated with any regimen recommended for adults.

8 The efficacy of treating neonatal chlamydial conjunctivitis and pneumonia is about 80%. A second course of therapy may be required. An association between oral erythromycin and infantile hypertrophic pyloric stenosis (IHPS) has been reported in infants aged <6 weeks treated with this drug. See CDC guidelines for more information.

9 If this dose cannot be tolerated, then erythromycin base 250 mg orally or erythromycin ethylsuccinate 400 mg orally 4 times a day for 14 days can be used.

10 The recommended regimen of ceftriaxone and doxycycline is for epididymitis most likely caused by gonococcal or chlamydial infection. Given the increase in quinolone-resistant gonorrhea, the alternative regimen of ofloxacin or levofloxacin is recommended if epididymitis is most likely caused by enteric Gram-negative organisms.

11 Because of the increase of quinolone-resistant gonorrhea, using a quinolone alone to initiate treatment of PID should be avoided. Whether the management of immunodeficient HIV-infected women with PID requires more intensive treatment has not been determined.

12 Lindane not recommended for pregnant and lactating women or for children <2 years of age. Ivermectin not recommended for pregnant and lactating women or children who weigh <15 kg.

13 Multiple studies and meta-analysis have not demonstrated a consistent association between metronidazole use during pregnancy and teratogenic or mutagenic effects in newborns.

14 Screening for and treatment of BV in pregnant women at high risk for premature delivery is recommended by some experts and should occur at the first prenatal visit. Intravaginal treatment during pregnancy (at high or low risk for premature delivery) not recommended.

15 Safety during pregnancy not established.

FORMS & WORKSHEETS

Sexually Transmitted Diseases